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# Time Code Editing Primer

*and basic editing glossary*







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*Control Rm.*

## A Time Code Editing Primer

This booklet is designed to introduce the basics of computer editing to those whose previous experience has involved the use of control track editing systems, and to help give a better understanding of how to use high-level editing systems such as Edit Master.

### The Basics of Time Code Editing

Computer editing systems such as Edit Master are most commonly used to create not one, but two products as the result of an editing session. The first, and most obvious of these, is the edited master tape itself. The second is the list of edits that comprise a program, in a form called the Edit Decision List (EDL).

In the simplest terms, an EDL is a description of a program that can be understood by an editing system computer, including Edit Master and other computer editing systems. The system can take this description and use it to control the record VTR and the various sources—including playback VTRs and switcher sources—in order to assemble an edited master videotape of the program.

If you use an editing system for on-line work, meaning that you are not going to be re-performing the editing session at a later date, then the EDL that results from your session will be mainly of archival value—you'll want to keep it around for a while in case you need to make changes in your program, but the primary product of your editing session will be the edited master tape.

When you use an editing system for off-line work, in which case you will use the EDL you create to re-perform (or "conform") your editing session using the original camera masters, then the EDL created during your session will be equally as important as the edited master rough cut tape. This EDL will guide the on-line editing system during final auto assembly.

## The Power of Time Code

Time code lets us work with absolute locations on tapes. Each frame of video has its own time code address which will be unique—at least on that particular tape. Not only does the unique address provided by time code allow us to specify very precisely where each edit is to start and end, it also allows the editing system to provide absolute frame accuracy and repeatability when previewing and performing edits.

When setting up an edit for a preview or perform, there are two basic and essential pieces of information that the editing system will need before it can make any edit. These two things are:

1. A record in point (time code)
2. A source in point (time code)

Optionally, you may decide to predetermine an ending point for the edit, which will comprise:

3. An out point (for either the record VTR or a source)

In other words, you must at least tell the system where you want the edit to start on the record VTR tape (edited master) and where the source signal starts on the source tape (or auxiliary source).

You may leave a preview or perform "open-ended," determining an out point manually while tape is rolling, or you may tell the system ahead of time where the edit will end, determined either by a record out point, or by a source out point.

These two basic requirements, and the optional third piece of information, are true no matter what type of edit (cut, dissolve, key or wipe) is involved.

In most cases, the out point for an edit is determined by the source out point. Exceptions would include precisely timed inserts into an edited master, where the out point is determined by a record out point to assure that nothing important on the edited master is recorded over.

The edit points may be determined by marking them from tape using the Mark In or Mark Out keys, or by using the Set In or Set Out keys to enter known time code addresses, such as those noted on paper while watching window dub copies of the original material.

*A scenario: You play your source tape, and find the point where you want to start using a scene. You press the Reverse play key to back up to before the start of the scene, and then press Play again. At the precise point where you want the edit to start, you press Mark In.*

*You then let the tape continue in Play until you reach the point where you want the scene to end. In order to allow yourself a bit of flexibility later on, you Mark Out a bit past where you think you'll actually want the scene to end—you can always cover the end of this edit with the start of a new one, knowing that Edit Master can easily clean the list for you once you're satisfied with the way the show works.*

*You then stop the source VTR and play the record tape to find the point where you want to place the scene from the source tape. When you find it, you press Mark In to designate the start of the edit on the record tape.*

*You press the VVV preview button, and the system lets you see how the edit will look when you actually make it. It seems to start a bit late on the record tape, so you trim the record in point by minus 5 frames and preview the edit again. This time it looks perfect, so you press Record. Edit Master makes the edit for you, and enters it into the EDL. You're now ready to locate your next scene on the source tape and repeat the process.*



It would thus appear that the basics of building an edit decision list are fairly simple, and this is essentially true. In making a simple cut, for instance, you tell the computer from which source the signal is to be taken, what the edit mode is (audio/video, etc.), give it two in points and an (optional) out point, and then record it.

Simple cuts, however, represent just the beginning of what can be done with a computer editing system; the ability to make multiple-source effects transitions is what computer editing is all about, and this becomes a bit more involved, although not terribly much so.

### Effects Transitions

There are three basic effects transitions available in computer editing: dissolves, wipes, and keys. Dissolves and wipes are handled in a virtually identical manner with regard to time codes, while keys are a bit different.

The splitting of audio/video is properly a question of edit modes within a cut, but will be included here because it produces what might be considered an "effects transition".

### Dissolves and Wipes

The basic concept behind dissolves and wipes is that the edit will involve two signal sources. The edit will start with the signal from the first source (known as the "from" source), and then make a transition to the signal from the second source (known as the "to" source).

The main task in entering the information for a dissolve or wipe into the computer is describing to the computer when (or where, on the tape) to make the transition, and how quickly to make the transition. In the case of wipes, it will also be necessary to tell the computer which wipe pattern to use.

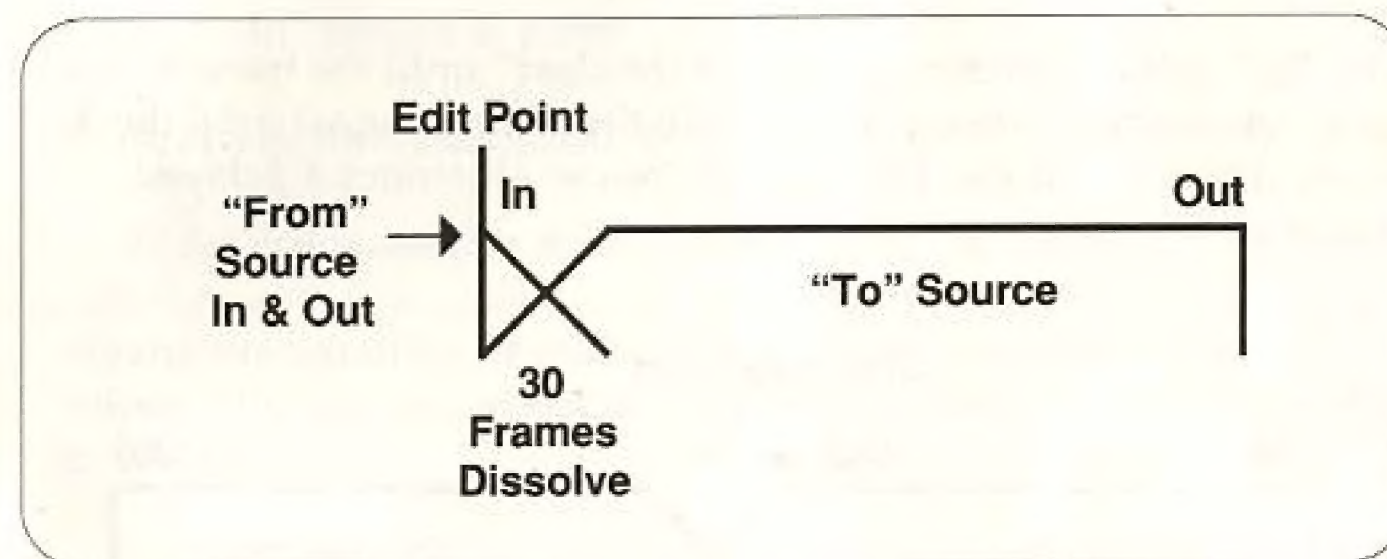
There are two types of dissolve or wipe transitions, known as "immediate transitions" and "delayed transitions."

### Immediate Transitions

In an immediate transition, the effect (dissolve or wipe) begins as soon as the record VTR has gone into record. This procedure is used to make the transition from the last scene recorded on the record VTR's tape to the next scene a dissolve or a wipe. Since all edits end as a cut, this gives the editor the continuing option of making the transition to the next edit an effects transition.

In an immediate transition, the "from" source is the one that was last used in the previous edit, and its in point will be its previous out point. No duration is established for the "from" source. The edit thus starts with what is known as a "match-frame", or "tracking" edit. It picks up exactly where it left off, and then immediately starts the transition to the "to" source, at whatever rate has been established for the effect duration.

In an immediate dissolve, the "from" source would be used only during the dissolve itself, as shown in the diagram below.





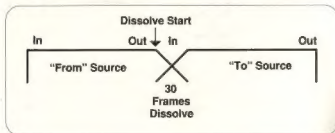
### Delayed Transitions

In a delayed transition, a duration is established for the "from" source. The edit thus starts at the "from" source in point, and continues with that signal to the "from" source out point. When the "from" source out point is reached, the transition is then made to the "to" source in point. The edit then continues to the "to" source out point, where the edit ends.

The fact that two difference sources (perhaps containing two totally different scenes) are used during a single recording pass on the edit master tape is the reason that edits are usually called "events". The term "edit" might be construed as indicating a single scene, whereas the term "event" indicates a sequence of actions taken by the editing system in a single pass on the edit master tape.

In a delayed transition, the "from" source will be "in the clear" (not mixed with any other signal) up to and including its out point. The "from" signal will then be mixed (dissolved or wiped) with the "to" signal for the duration of the effect. In the case of a 30-frame (one NTSC second) dissolve, for example, the "from" signal will be used for 30 frames past its out point, in decreasing strength, until the dissolve is complete.

The "to" signal, therefore, is not "in the clear" until the transition is complete, since it is being mixed with the "from" signal until the 30-frame dissolve is done. The diagram below illustrates a delayed dissolve:



### Defining Dissolve & Wipe Edit Points

While a basic cut requires only three edit points to be defined, a dissolve or a wipe will require that three or four edit points be defined in the case of an immediate transition, and that four or five edit points be defined in the case of a delayed transition.

For an immediate transition, the three edit points (time code numbers) that will be needed are:

1. A record in point
2. A "from" source in point (no duration)
3. A "to" source in point

In addition, as with cuts, the out point is optional:

4. An out point (for either the R VTR or "to" source)

For a delayed transition, the four edit points that will be needed are:

1. A record in point
2. A "from" source in point
3. A "from" source out point
4. A "to" source in point

And, again, the optional out point:

5. An out point (for either the R VTR or "to" source)

Again, the handling of time codes is identical for dissolves and wipes. The only difference is in the visual effect created during the transition.

### Describing the Transition

For both dissolves and wipes, the editing system will need to know how long the transition effect is to be. While capabilities vary from one system to the next, the effective range using Edit Master is 0 to 999 frames.

A "zero frame" dissolve or wipe would appear in the final edited master as a cut, since the "from" source would be used for 0 frames—that is to say, not at all. While the ability to make a zero frame transition may seem at first to be a useless feature, this is commonly done when the editor wishes to control the switcher manually, as for doing a non-linear effect (for instance, to do a dissolve that stops half way through, holds as a "super" for a moment, and then continues on through to the "to" source).

Even though the effect duration is zero, the system still considers the event to be a dissolve, and will roll all three VTRs (the record VTR and two source VTRs, or other sources) in sync.

For wipes, the computer will also need to know which wipe pattern to use, and this question is part of the dialogue used when setting up a wipe. The most commonly-used pattern numbers are those used by the Grass Valley Group switchers.

With the GVG pattern numbers, the normal-direction wipes are defined by a one or two-digit number, such as 3, 17, etc. To reverse the direction of wipe travel, 100 is added to the pattern number—for example, 103, 117, etc.

If you know the pattern numbers used by the on-line computer you will be using (which you could, of course, photocopy out of the computer's manual to have on hand for reference), you may enter them into the list. If you don't know which wipe pattern numbers to use, enter "0" for the wipe patterns when building the list, and then change them once you've loaded the list into the on-line computer.

## Keys

A key can be thought of as a cut that combines two sources, with one of the sources, known as the "foreground" source, keyed or matted over the other source, which is known as the "background" source.

The background source provides the primary visual content of the edit, and starts and ends as a cut, or as a fade from or to black. The foreground may be keyed over the background for either the entire duration of the event, or for only a part of the event.

It is not possible to dissolve or wipe to a key in a single event—doing so will require either two events (a dissolve or wipe first, and then a key), or the creation of a sub-master tape that contains the key, which is then used as a "to" source tape in making the dissolve or wipe.

Key designations are about the most complex types of edits in terms of the way they are described in the edit list. The logic of describing keys in the EDL may seem in some cases to be a bit twisted with regard to foreground durations, but with study and practice, it will eventually make at least some sense.

There are two basic types of keys: key in and key out. With both types, there is a "fade" option that allows the user to fade the combined signals from or to black.

### Key In

This is the "normal" key mode, and is the default setting (the setting the computer will use unless told otherwise) when setting up a key.

In order to perform a key, the editing system will need at least three, and possibly four or five edit points. These are:

1. A record in point
2. A background source in point
3. A foreground source in point
4. A foreground source out point (optional)
5. An out point (optional—for either the R VTR or background)

The foreground source out point (and therefore, its duration) is only established when the foreground is to be taken out before the end of the event. If the foreground is to remain visible through the end of the event, then no out point (source duration) should be established (this is a convention originally established by CMX, and may not apply to other editing systems).

There are two interrelated options in setting up a key. These are the "delay" option, and the "fade" option. The fade option is only available if the delay option is not used.

### The Delay Option

In a key without a delay, the event will start with the background signal up full, and the foreground key will immediately be dissolved on at whatever duration was defined when the key was set up. The foreground key will then continue until its out point is reached, or, if no foreground duration was established, until the end of the event.

In a delayed key, the event will start with the background signal up full, but the foreground key will not be dissolved on until after the delay that has been established. In essence, a delayed key combines a cut and a key into a single event, thus saving time during assembly. As is the case with no delay, the foreground may then be dissolved out at its out point, or may continue through the end of the event.

### The Fade Option

Normally, a key starts with the background video at full strength, with the foreground key being dissolved in on top of it, either immediately or after a delay. The fade option allows you to fade both background and foreground up from black. This could be used at the start of a program, for instance, to fade the first scene and the opening title on at the same time.

Since both the foreground and the background will be faded up from black simultaneously, a foreground delay is not possible. For this reason, if a delay is established when setting up a key, the computer will skip the fade option query.

To achieve the effect of a faded and delayed key, you will have to perform two events: a dissolve from black to what will be the background signal ending as a cut, followed by a match-frame edit to the key that brings in the foreground source.

### Duration

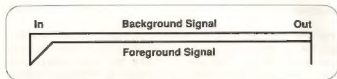
The system will also need to know at what rate to dissolve the foreground key on and (in some cases) off. This is the duration that is part of the dialogue when setting up a key. The duration range is the same as with dissolve and wipe transitions: 0 to 999 frames. A duration of 0 will cause the foreground to "pop on."

If no foreground duration is established, the foreground key will be dissolved on at the effect duration rate that has been established, and will stay on through the end of the event.

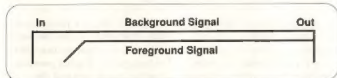
If a foreground duration has been established, then the foreground key will be dissolved on at the established effect duration rate, will continue until the foreground out point, and will then be dissolved off at the same effect duration used to bring it on. It is not possible, therefore, to use different durations for the dissolve on and the dissolve off of the foreground key, without breaking the event into two events. (Achieving this effect will be explained in the paragraphs on Key Out events, below.)

If the duration established for dissolving on the foreground key is zero, the result will depend on the on-line system used during auto assembly. On many systems, the foreground will not appear until the second frame of the event, which may not be the effect you want. Making the foreground key appear over the background starting with the first frame of the event is what the Key Out option is all about.

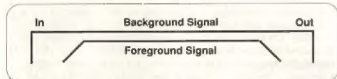
The diagrams that follow illustrate various key in events.



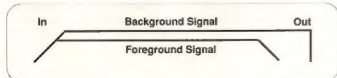
The event above is a key in with no delay, and no out point established for the foreground source (it therefore stays up through the entire event).



The above event is a delayed key in, with no out point established for the foreground source.



The above event is a delayed key in, with an out point established for the foreground source—it dissolves off before the end of the event.



The above is a key in with fade on (foreground and background fade up from black together), and with an out point established for the foreground source.

### Key Out

A key out is similar to a key in, except that the event starts with the foreground key up at full strength with the first frame of the event. This is particularly useful for extending a key over two or more scenes.

In a key out, the foreground key signal will continue to the end of the event if no foreground out point has been established, or may be dissolved off before the end of the event by establishing an out point with a foreground duration less than the background duration.

The delay option is not offered in a key out, since the whole point is to start with the foreground up at full strength.

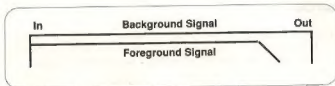
The fade option is offered, however, and allows the foreground and background signals to be faded to black together. Just as with a key in, it is not possible to dissolve out the foreground key and then fade the background to black at a later point without performing two events—a key out first, to dissolve out the foreground, and then a match-frame edit to dissolve the background signal to black.

If you want to dissolve the foreground in at one rate, and then dissolve it off at a different rate, you'll need to define two events. The first would be a key in (with or without a delay), to bring the foreground on. Do not establish a foreground signal duration, so that the foreground is kept on through the end of the event. End the event at some point before you want the foreground to be dissolved off—say halfway through the scene.

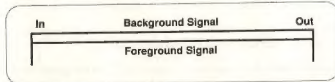
The second event would be a key out. If the background scene is to continue, simply make the background in point a match frame to the old out point, and establish a foreground out point that will fade the foreground off wherever you want it to be dissolved off, and at whatever rate you want the dissolve to be.

The following diagrams illustrate various types of key out events.

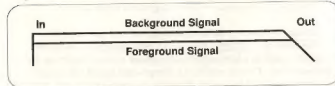




The above event is a key out, with an out point established for the foreground signal.



The above event is a key out with no out point established for the foreground signal (it stays on through the entire event).

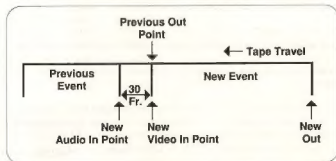


The above event is a key out with fade on. Both foreground and background fade to black together.

## Split Edits

A split edit is a cut in which the starting points of the audio and video portions of the signal are different—"split apart", as it were. For instance, the event could start as a video-only cut, with the audio then being brought in after a delay, or visa-versa.

Looking at a diagram of a split edit, and using as an example a delay in the video of 30 frames, here is how one would appear, looking at a completed split as it would be on the edited master tape:



In the example, the new audio is being introduced 30 frames before the new video, and starts 30 frames before the end of the previous event. The in point for the event is considered to be the audio in point, since that's where the new recording begins. The video is delayed by 30 frames, or in other words, one second after the audio recording has begun (which, in the example, corresponds to the previous audio/video out point).

In order to make a split edit work properly, therefore, it's necessary to "back into" the previous edit by the amount of the delay of either the video or audio. The procedures for setting up a split edit are:

1. Determine and set or mark the amount of the delay of either the audio or video necessary to achieve the desired effect.
2. Trim the record in time back (earlier) by the amount of the delay.



3. Establish a source in time for the first element (audio or video) that will be used.
4. Establish an out point for the edit as normal (optionally—either for the source or the record VTR).

Perhaps an example will help understand the process.

The previous scene ended in an office, with a shot of a character mulling over a phone conversation. The next scene will take place on a noisy city street. You decide to "sneak up" the street sounds one second before cutting to the shot of the street scene.

The record out point for the previous event was 1:13:12:24, and the first audio frame of the street scene is 3:48:18:02 on the source tape.

Since you've decided on an even number of 30 frames, the job is easy:

1. Trim the record in point (which the computer updated from the old record out point when the previous event was recorded) back by -30 frames, resulting in a new record in point of 1:13:11:24. This is where the new audio will start. Clear the record out point.
2. Enter the source in time for the start of the audio, which in this case will be 3:48:18:02.
3. Establish a split edit, delaying the video by 30 frames. This tells the system to start the video 30 frames after the audio, at a source in time of 3:48:19:02 (the first visual frame), and at 1:13:12:24 on the edited master tape (the previous record out point).
4. Establish an out point, and record the event.

For a polished transition, if you had recorded the audio for the previous event on channel one only, you would have potted it down during the last 30 frames of the previous edit, and then made the split edit using channel two only, potting it up during the first 30 frames. This would result in a cross-fade of the old and new audios (and would require a mix of the two channels when copies were made).

A minor note of encouragement: split edits can be confusing at first, at least until you have made a few of them. With experience, you'll learn to let the computer do the actual figuring for you, using the ability to transfer edit points on the screen—especially the ability to trim by duration. The constant registers can also be helpful.

## Other Factors in Describing the Event in the EDL

The balance of the information the computer needs is fairly simple to understand—the real trick to computer editing is learning to use time code numbers to tell the system where edits begin and end, and what sources to use within each event.

In addition to the in and out points, the computer will need to know what the edit mode is (the audio/video combinations), and what the source VTR reel numbers are. This brings us to the question of how Edit Master updates the edit display after each edit.

## Edit Updating

### Edit Type and In/Out Point

After each event is recorded, Edit Master automatically resets the edit type to CUT, no matter what type of edit the previous event entailed.

The record in point is made equal to the previous record out point, whether it was one you entered before making the edit, one that the computer figured by adding the total source duration or durations to the record in point, or one that was established by ending an open-ended edit by pressing the Record key. (If you end an open-ended edit by pressing the space bar, the event is not entered into the list, and the edit points are not updated.)

With VTR sources, the in points are made equal to the old out points, except for "from" source out points in dissolves and wipes. These are made equal to the "from" source in point plus the total edit duration. This is done to keep iso tapes in sync after each event is recorded.



With either AUX or BLACK as the source, both in and out points are erased, since there are no actual time codes for these sources.

### Edit Mode, Reel Numbers & the Constant Registers

The edit mode is not affected by recording an event, and stays as set until you change it. It's thus important to remember to change it back to audio/video, for instance, after recording a video-only insert.

The source VTR reel numbers are not changed when an event is recorded. Again, it's important to remember to change them when a new reel is used, especially if the time code hours don't correspond to the reel numbers (a common practice when recording time code that make catching such errors much easier).

Finally, the constant registers are not affected by recording an event.

### Some Closing Comments

Many people find a high-level computer editing system to be a bit intimidating when they approach one for the first time. Certainly there are a lot of numbers on the screen, and even the color-coded keyboards don't appear all that user-friendly at first glance.

There is something of a trade-off involved here, in that, with power comes complexity. Fortunately, after a brief period of learning and familiarization, one finds that powerful systems like Edit Master are actually easier to use than less capable systems.

### Editing by Picture and Sound

Experienced editors, working with Edit Master or similar high-end systems, don't pay much attention to all the numbers on the screen unless they need to make use of them. For the most part, they pay attention to the images and the audio.

When the time comes to perform manipulations on edits, their understanding of what the numbers mean becomes a major asset, and once again makes things easier.

As to the keyboard, just as with touch typing, most editors find that after a while they don't need to look at the keyboard—the right key falls readily to hand.

### Play, Mark, Preview, Trim

Many control track editing systems and some of the simpler time code systems are designed to encourage you to determine edit points by pausing the tape. While there may be some who would disagree, we suggest that this practice makes it harder to maintain an even flow of pacing while editing.

Certainly there are times when it is appropriate to search for and pause on the exact frame where an edit should begin or end and mark it while the tape is paused. Overall, though, most editors find that marking edit points while tape is playing gives them more of a "feel" for the edit, and it is this practice that systems such as Edit Master are designed to encourage.

When editing dialogue, for instance, it is easier and faster to maintain good continuity and pacing while marking edits on the fly. One very useful technique is to roll tape backwards from within a section of dialogue, and mark the in point just "after" (reverse "before") the actor or performer starts to speak. This is one of the reasons Edit Master offers a Reverse play key.

(The other main reason is that often you'll know instinctively after marking an edit point that your timing was off. The reverse key lets you back up at a fixed—and therefore known—speed and re-mark the edit point. The problem with variable speeds is that, unless there's identifiable movement in the frame, slow reverse can look a lot like fast reverse, especially with a time base corrected signal.)

The real key to fast and easy editing using Edit Master and similar systems is the ability to preview—accurately—and then trim your edit points. With practice, you become very adept at guessing how many frames, and in which direction on which tape, an edit point is off. Trim what you guess is the appropriate amount of frames, preview again, and repeat the process until the edit is exactly right. As you gain experience, your first guesses will become more and more accurate.



The ability to transfer time code values from place to place on the active edit screen lends a great amount of power to the editing process. Backtiming by trimming a channel's in point by minus the duration of another channel, grabbing a temporary duration for a split delay and using the spare channels as temporary holding places for time codes are all practices that can speed up and simplify editing.

If you're new to high-level time code editing, it's a good idea to spend some time simply playing with the system, experimenting with its capabilities and trying things out. This kind of low-pressure experience—with no client or boss breathing down your neck—will pay off handsomely in the long run.

Despite the reality that editing is often done under deadline pressure, we feel that, with the right equipment, it should be fun. Edit Master was designed to provide a powerful set of tools that can make editing easier, and in the process, a lot more fun.



## A Basic Editing Glossary

**A-MODE ASSEMBLY** *see Auto Assemble*

**A/B ROLLING:** In video editing, indicates two VTRs playing two source tapes, to allow for dissolves, wipes, etc. between them.

**A.D.O.:** Ampex Digital Optics The trade name for the digital effects system manufactured and sold by Ampex

**A.D.R. (AUTOMATIC DIALOGUE REPLACEMENT):** A system used in looping (replacing) actors' dialogue.

**A.G.C. (AUTOMATIC GAIN CONTROL):** A circuit that automatically adjusts input levels, either for audio or video.

**A.P.L.:** Average Picture Level.

**A.T.R.:** Audio Tape Recorder.

**ACADEMY LEADER:** Film leader that features countdown numbers to aid in cueing the film prior to use. Also called SMPTE leader.

**AMBIENCE:** The natural background sounds found everywhere, which are part of the recorded audio

**ANALOG:** Describes an electrical signal that is continuously variable.

**ANIMATIC:** Limited animation, consisting of artwork shot and edited to serve as a videotape storyboard. Commonly used for producing test commercials.

**ANIMATION:** The recording of one to several frames at a time, changing or moving artwork or models, etc., between frames, to create the appearance of movement upon playback.

**ASPECT RATIO:** The ratio of picture height to width—in television, 3:4.

**ASSEMBLE EDIT:** An edit wherein all existing signals on a tape (if any), including video, audio and control track, are replaced with new signals.

**ATTENUATE:** To reduce the strength of a signal

**AUDIO:** The sound portion of a program.

**AUDITION:** In editing and live recording of audio, to preview or listen to a sound before using it in a production.

**AUTO ASSEMBLE:** An operation in which a computer performs editing unaided, working from a previously-prepared edit decision list. A-Mode assembly is performed sequentially, in the order in which events occur in the list. B-Mode assembly is performed in checkerboard fashion, doing all edits from currently-mounted reels, with the editing system then requesting that new reels be mounted. also see *C-Mode Assembly*

**B.M.I.:** Broadcast Music Incorporated, a music licensing organization.

**B-MODE ASSEMBLY** see *Auto Assemble*

**B-ROLL:** A duplicate copy of original footage made to permit A/B roll editing.

**BACKTIME:** To determine the starting time of an element (such as a musical piece) by subtracting its length from the program time at which it should end.

**BANDING:** A picture aberration consisting of a series of horizontal lines sometimes seen upon playback of a tape in a segmented format, such as the 2-inch quad format.

**BARS** see *Colorbars*

**BETA (BETAMAX):** The 1/2-inch video cassette system developed by Sony for consumer and industrial use.

**BETACAM:** The high-speed component 1/2-inch video cassette system developed by Sony for broadcast production.

**BINARY:** A system of counting using a series of on/off, or 1/0 pulses.

**BIT:** A single binary pulse.

**BLACK BOX:** The generic slang term for pieces of electronic equipment with no moving parts—usually referring to signal processing equipment.

**BLACK LEVEL:** The electrical signal level defined as representing black in a picture—usually set at 7.5 IEEE units

**BLANKING:** The portions of the video signal during which both the camera and receiver complete a line (horizontal blanking) or a field (vertical blanking), and retrace to begin the next scan.

**BRIGHTNESS:** 1. The measure of how bright an object appears. 2. The overall level of brightness to which a monitor or receiver is adjusted.

**BUMP:** To transfer, or dub, from one tape or channel to another.

**BURST** see *Colorburst*

**BUS (Alt. BUSS):** A row of buttons on a switcher representing the various input signals.

**BYTE:** A standard digital grouping of 8 bits, which can represent 256 numeric values. (Four bits make up a "nibble"; two "nibbles" make a byte; two bytes make a "word".)

**C.G.** see *Character Generator*



**C-MODE ASSEMBLY:** This describes a variation on B-Mode assembly, wherein the order of assembly is scheduled by source reel and source in time code. It is especially useful in interformat editing, where the sources are cassettes and the record format is 1-inch, due to the faster cuing time of 1-inch machines compared to cassette machines.

**C.R.T. (CATHODE RAY TUBE):** A vacuum tube containing an electron gun that is aimed at a screen coated with phosphors that glow when struck by electrons. Used for picture tubes, waveform and vector displays, etc.

**CANS:** Slang term for headphones.

**CAPSTAN:** The rotating shaft that, in contact with a pinch roller, pulls tape through a VTR or ATR.

**CAPSTAN SERVO:** A circuit that precisely controls the rotational speed of the capstan.

**CHARACTER GENERATOR:** An electronic typewriter that creates letters and other graphic elements in the form of a video signal for use in production.

**CHROMINANCE:** The color portion of a video signal.

**CLIP:** 1. The control that determines at what brightness level a signal will be keyed. 2. The process of compressing a brightness level, usually when it would otherwise be unacceptably high.

**COLOR BLACK:** A black signal containing full sync, color burst, and a black level of 7.5 IEE units. Also known as Crystal Black.

**COLOR BURST:** A sample of the color subcarrier that is inserted into the horizontal blanking interval at the start of each line of video.

**COLOR TEMPERATURE:** The mix of various colors contained in "white" light, generally referring to the amounts of red and blue, measured in degrees Kelvin.

**COLOR UNDER:** The heterodyne color process used in videocassette recorders, whereby the 3.58 MHz color frequency is converted down to a lower frequency, and then reconstructed upon playback.

**COLORBARS:** A standard color test signal containing samples of the primary and secondary colors in television, plus black and (usually) white.

**COMPONENT VIDEO:** A system of signal recording and processing that keeps luminance and chrominance signals separate, as opposed to the process of combining them into a composite video signal.

**COMPOSITE VIDEO:** A full video signal, including sync, color-burst and encoded picture luminance and chrominance information.

**CONFORMING:** Performing final editing using an off-line edited master as a guide. (See also *Auto Assembly*)

**CONTINUITY:** The flow of action, sound, etc., from one scene or shot to the next.

**CONTRAST:** The ratio of bright to dark areas within a picture.

**CONTROL TRACK:** The "electronic sprocket holes" recorded on video tape to guide the heads during playback.

**CRASH EDIT:** An edit that is electronically unstable, such as one made by using the pause control on a VTR. Sometimes used to refer to a manual edit.

**CRAWL:** In graphics, information moving horizontally through the picture, usually at the bottom.

**CRYSTAL BLACK** see *Color Black*

**CUE:** 1. The act of positioning tape or film so that it is ready to be used (as in a live show, or during editing). 2. A video or audio reference point on a tape at which some action will be taken.

**CUT:** 1. An instantaneous transition from one picture to another. 2. To stop the tape and all action, such as after a take. 3. A section of a tape or a record.

**CUTAWAY:** A shot that can serve to cover an edit, such as one of an interviewer, or of an item being discussed.

**D.A. (DISTRIBUTION AMPLIFIER):** An audio or video amplifier that accepts a single input signal, and provides several identical output signals, often in multiples of four.

**dB** see *Decibel*

**D.O.C.: Drop Out Compensator,** a circuit that minimizes the visual effect of tape dropouts.

**D.V.E.: Digital Video Effects** (also the trade name for the digital effects units marketed by NEC and The Grass Valley Group).

**D.V.R.: Digital Video Recorder**

**DAILIES:** A film term indicating a "quick and dirty" print of each day's shooting made for viewing by various production personnel, normally either during evening hours or the next morning. Used to judge the results of each day's work.

**DEADPOT:** In audio, to play a source with the mixer's potentiometer turned down until the source is needed. Usually done when backtiming an audio source.

**DECIBEL:** A unit of measure applied to both sound and electrical signals, based on a logarithmic scale.

**DIGITAL:** A system whereby a continuously variable (analog) signal is broken down and encoded into discrete binary bits that represent a mathematical model of the original signal.

**DIGITAL EFFECTS:** Effects, such as picture compression, rotation, reversal, etc. performed with a digital effects system.

**DIRECT COLOR:** A recording system whereby the color subcarrier signal is recorded directly without conversion to a lower frequency, as opposed to heterodyne color. Requires a recorder with high bandwidth capabilities.

**DISSOLVE:** The gradual fading out of one signal simultaneous with the fading in of another signal.

**DOWNSTREAM KEYS:** A keyer that acts on the final signal of a switcher, after all other mix/effects banks. Usually also provides a master fade-to-black of the final switcher output.

**DROP FRAME:** A type of SMPTE time code designed to match clock time exactly. Two frames of code are dropped every minute, on the minute, except each tenth minute, to correct for the fact that color frames occur at a rate of 29.97 per second, rather than an exact 30 frames per second (see *Non Drop Frame*). Designed to make editors crazy.

**DROPOUT:** A patch of missing oxide on a videotape, seen as a white speck or streak in the picture.

**DUB:** (Noun:) A copy of a tape. (Verb:) To copy a tape, or to add new audio to an existing tape.

**E TO E:** Electronics to electronics (or Entry to Exit), meaning that the incoming signal is passed directly through a device without being affected (usually as with a VTR).

**E.D.L.: Edit Decision List,** the list of edits prepared during off-line editing prior to on-line editing.

**E.F.P. (ELECTRONIC FIELD PRODUCTION):** The technique of applying film-style production techniques (commonly single-camera) to videotape production.

**E.F.X.: Short for Effects.**



**E.N.G. (ELECTRONIC NEWS GATHERING):** The technique of using video equipment in place of 16mm film equipment for news production. Generally describes a package of a battery-operated camera and VTR used by a small crew that allows them to move, setup and shoot quickly

**EDGE NUMBERS:** Numbers either pre-exposed or printed along the edge of film to aid in locating a scene during editing, and for synchronizing picture and sound.

**ENCODER:** A circuit that combines the primary red, green and blue signals into a composite color video signal

**EQUALIZATION:** In audio, the balancing of various frequencies to create a more pleasing sound, by attenuating or boosting specific frequencies within the sound. In video, has several meanings, mainly related to correcting errors of signal non-linearity over a transmission path, and adjustments to match the performance of various playback heads on a VTR.

**EQUALIZER:** A device that performs equalization.

**ESSENTIAL AREA:** The area in the center of a picture that will be seen on virtually all receivers, regardless of possible poor adjustment (see also *Safe Action* and *Safe Title*).

**ESTABLISHING SHOT:** A shot showing an overall view of a location, used to establish the location and/or characters to be involved. Most often a wide shot, to help familiarize the viewer with the scene.

**EVENT (Editing):** In most computer editing systems, defines an action or sequence of actions performed by the computer in a single pass of the record VTR's tape.

**FADE:** The gradual increase or decrease of a video signal from or to black (video), or from or to silence (audio).

**FADER:** A lever, arm, slider or knob that accomplishes fades.

**FEEDBACK:** The phenomenon created when the output of an audio or video device is fed back to the input, creating an endless loop of the signal. In audio, usually creates a howling sound. In video, can be used to create certain visual effects.

**FIELD:** One half of a television frame, consisting of 262-1/2 lines, produced at a rate of approximately 59.94 Hz (color), or 60 Hz (black & white).

**FILM CHAIN:** Generically, a system combining a film projector with a television camera, used to transmit films or transfer them to videotape.

**FILM STYLE:** Refers to single-camera videotape production done scene-by-scene, and often out of sequence, as is done in motion picture production.

**FLIP:** A digital video effect whereby the picture is reversed, either prior to or during a shot.

**FOLEY:** Background sounds added during audio sweetening to heighten realism, consisting of footsteps, door slams, voices, etc. (Rhymes with "wholly".)

**FONT:** A full set of letters and symbols of one size and all in the style of an individual typeface. Also sometimes used as shorthand slang for Character Generator.

**409 (Editing):** The trade name of a computer program designed for list cleaning. (see also *Soft Scrub*)

**FRAME:** A complete television picture, comprised of 525 lines, made up of two fields, produced at a rate of approximately 29.97 Hz (color), or 30 Hz (black & white).

**FRAMESTORE:** A digital device designed to store and display a single television frame as a "freeze frame". A Framestore Synchronizer uses the same basic technology to accept a non-synchronous signal and synchronize it with a second signal, such as "house sync".

**FREEZE FIELD:** Stopping the motion of a scene and displaying one field for an extended period.

**FREEZE FRAME:** Stopping the motion of a scene and displaying one full frame for an extended period.

**GAMMA:** The characteristics of the response curve of the red, green and blue portions of a video signal from black to peak white.

**GAIN:** The amount of amplification of a signal, usually accomplished at the input stage with a preamplifier featuring a variable control, such as a potentiometer

**GENERATION:** Distance from the original tape, in terms of how many times the material has been copied. The original is "first generation", a copy of it is "second generation", a copy of that copy is "third generation", etc.

**GENLOCK:** A system whereby the internal sync generator in a device, such as a camera, locks on to and synchronizes itself with an incoming signal.

**GLITCH:** A slang term for a visual disturbance in a video signal

**GRAPHICS:** In general, printed material and/or artwork.

**HEAD DRUM:** The rotating drum used in all VTRs on which the video recording and playback heads are mounted.

**HELICAL:** Literally, describing a helix, as in the tape path around the head drum of all but quad VTRs. Generally refers to all helical VTRs

**HERTZ (Hz):** Cycles per second.

**HETERODYNE:** The conversion of one frequency to another frequency, as used in the color system of videocassette recorders. (see also *Color Under*)

**HIGH BAND:** A videotape recording system that employs an FM signal deviation of 7 - 10 MHz for recording. Generally, a high-quality VTR. (see also *Direct Color*)

**HORIZONTAL SYNC:** The synchronizing pulses used to define each line of a television picture, occurring at a rate of approx. 15,734 Hz (color), and 15,750 Hz (black & white).

**HUE:** Color tone (red, blue, yellow, etc.)

**HUM:** Interference in a video or audio signal, often at the 60 Hz power line frequency.

**Hz** see *Hertz*

**I<sup>2</sup> (I-Square):** The CMX trademarked shorthand for Intelligent Interface—the devices that control VTRs and other peripherals

**I.E.E.E.:** Institute of Electrical and Electronics Engineers. Formerly known as Institute of Radio Engineers (IRE)

**I.P.S.:** Inches Per Second.

**I.R.E.** see *I.E.E.E.*

**IMAGE ENHANCER:** An electronic device that enhances the apparent sharpness of a video signal by exaggerating transitions between light and dark areas in a scene.

**IMPEDANCE:** Resistance to the flow of an electrical current.

**INSERT EDIT:** An edit in which existing control track is used as a reference, and audio or video may be recorded separately, or in any combination

**ISO (ISOLATED):** Describes the technique during multiple-camera taping of recording the signal from each camera on a separate VTR.



**JAM-SYNC:** The process of synchronizing a time code generator with the code being played back on a tape, and then performing an edit of time code from the generator onto the tape. Usually done to extend code on the tape, or to replace bad code, in either case while keeping a continuous count of code numbers.

**JITTER:** A picture aberration seen as small, fast vertical or horizontal shifting of a picture or part of a picture.

**JUMP CUT:** Any cut that visually jars or disturbs the viewer, most often by disrupting continuity.

**KELVIN:** The scale by which the color temperature of light is measured.

**KEY:** An effect in which a circuit uses bright portions of a signal to perform electronic switching between that signal and another (internal keying), or between two other signals (external keying). (see also *Matte*)

**KEYSTONING:** Perspective distortion caused by shooting a flat object, such as artwork, at other than a perpendicular angle.

**KEYED DUB** see *Window Dub*

**KINESCOPE:** A film shot from a television monitor. The method of preserving programs prior to the invention of video tape.

**LEVEL:** The strength of a signal.

**LIMITER:** A circuit used in audio that prevents the signal level from exceeding a preset limit—usually 0 VU. (see also *Peak Limiter*)

**LINE:** 1. The high-level input to an audio mixer is also called a "line level input". 2. The main program monitor in a studio is also called a "line monitor". 3. A line generically is any signal path.

**LIP SYNC:** Commonly done in music taping, where performers mime to playback of pre-recorded music. Also denotes proper synchronization of video and audio.

**LIST MANAGEMENT:** In computer editing, the process of using the computer to modify or rearrange edits, "clean" the list, etc.

**LOG:** A list of scenes and takes, prepared either during or after production, in preparation for editing.

**LOOPING:** A technique used when dialogue must be replaced by talent. A scene is repeated continuously so that actors can practice lip syncing to the picture. Once they are ready, the dialogue is recorded. (see also *A.D.R.*)

**LOW BAND:** A video recording system using relatively low FM carrier frequencies, as in videocassette systems. Denotes lower quality than high band recording.

**LUMINANCE:** The brightness of an object determines its luminance value.

**M FORMAT:** The original 1/2-inch component video recording system developed by Matsushita, and marketed by RCA, Panasonic and others. Since replaced by the M II format.

**M.O.S.:** Slang term for silent shooting. From the bastardized German "Mit Out Sprechen" without talking. (The correct German phrase would be "Ohne Sprechen")

**MASTER:** Master tape is the original tape shot during production. An Edited Master or Edit Master is the tape onto which a program has been edited during on-line editing.

**MASTER SHOT:** The shot that will serve as the basic scene, and into which all cutaways and closeups will be inserted during editing. Often a wide shot showing all characters and action in the scene.

**MATCH FRAME EDIT:** An edit in which the source and record tapes pick up exactly where they left off. Used either to extend the previous edit, or to make an effects transition to the next scene. Also called a "Tracking Edit".

**MATTE:** A key in which the area being inserted into a background signal is electronically filled in with a solid color. Most titles and credits are matted in. Also called a Matte Key.

**MIRAGE:** Trade name for a digital video effects system manufactured by Quantel.

**MIX/EFFECTS BANK:** The section of a switcher that performs dissolves, wipes and keys, etc.

**MIXER:** A device that allows various audio sources to be combined and mixed together, with their relative levels being adjusted.

**MONITOR:** In video, denotes a picture tube and associated circuitry capable of displaying a composite video signal. In audio, this is another name for a speaker.

**MONOCHROME:** Black and white.

**MONTAGE:** Trade name for an editing system that uses multiple 1/2-inch video cassette recorders to provide random access to material. Manufactured by a company of the same name.

**MORTICE:** An effect wherein a picture is compressed and surrounded by a black or colored border. Often done at the end of commercials to permit graphics to be matted into the border.

**N.G.:** Short for No Good (as for indicating a bad take).

**N.T.S.C.:** National Television Standards Committee, the committee that established the color transmission system used in the U.S. and some other countries. Also used to indicate the system itself.

**NAT SOUND:** Natural sound; the sound recorded along with video at the time of original taping.

**NEEDLE DROP:** A unit of measure in determining payment for use of musical pieces in programs. Each time a piece of music is used in a production (in other words, each time the "needle drops" on the record), a fixed charge is assessed

**NOISE:** In video, a visual aberration that appears as very fine white specks (snow), and that increases over multiple generations. In audio, usually heard as hiss. Undesirable in all cases.

**NON-DROP FRAME:** A type of SMPTE time code that runs in continuously ascending numbers, even though it will not exactly match actual elapsed time. (see also *Drop Frame*)

**NON-SEGMENTED:** Those videotape formats that record a full field with each pass of the head are called non-segmented formats. Includes all 1/2-inch, 3/4-inch and the Type C 1-inch formats.

**OFF-LINE:** Preliminary, or test editing, usually done on a low-cost editing system using videocassette work tapes. Performed to allow editing decisions to be made, and to gain necessary approvals prior to performing the final edit

**ON-LINE:** Final editing, using the original master tapes to produce a finished program ready for distribution. Usually preceded by off-line editing, but in some cases programs go directly to the on-line editing stage. Usually associated with high-quality computer editing systems.

**OPTICALS:** A film term denoting visual effects produced optically, either in the camera or (more commonly) in the lab. These effects are done electronically in video.

**OVER-RECORD:** The recording of additional material at the end of an edit, part of which will later be covered by the start of the next edit.

**OXIDE:** The iron oxide coating on audio and video tape that magnetically stores information (pictures and sounds).

**P.A.L. (PHASE ALTERNATION by LINE):** The color television system developed in Germany, and used by many European and other countries.

**PACING:** The apparent flow and rhythm of a program as perceived by the audience.



**PAINTBOX:** The trade name of a computer graphics system manufactured by Quantel. Often used as a generic term to describe computer graphics systems.

**PAPER EDIT:** A list of edits made in preparation for editing, made while viewing original material, but without actually making any edits. Normally makes use of SMPTE time code numbers.

**PAPER TAPE:** A 1-inch-wide tape made of paper, used to store an edit decision list in the form of a series of small holes that can be used at a later time to load the list back into a computer editing system. Also called a Punch Tape

**PATCH PANEL:** A panel equipped with rows of input and output connectors, allowing signals to be routed with the use of Patch Cords. Used for Audio, Video and Lighting.

**PEAK LIMITER:** A circuit used in both video and audio signal processing that prevents peaks in the signal level from exceeding a specified limit.

**PEAK WHITE:** The brightest level of the video signal, normally set no higher than 100 IEEF units

**PEDESTAL:** The level of the video signal representing black, normally set at 7.5 IEEF units.

**PHASE:** The timing relationship between two signals, often of the same frequency.

**PHOTOMATIC:** A limited animation done on videotape, using photographs as artwork, to serve as a video storyboard. Commonly used to produce test commercials. Similar to an animatic.

**PING-PONG:** To transfer audio from one channel of a tape to another. If program audio has been recorded on a channel normally assigned to time code, the audio will be ping-ponged to another channel so that time code can then be recorded on the proper channel.

**POST PRODUCTION:** The editing process.

**PREROLL:** The length of tape time ahead of an edit point to which tapes are cued prior to performing an edit. Necessary to allow tape speed to stabilize before the edit is made.

**PREVIEW BUS:** A row of buttons on a switcher that permits a signal or an effect to be viewed on the preview monitor prior to being selected on the program bus.

**PROC AMP (PROCESSING AMPLIFIER):** A unit designed to correct levels of a video signal, and to either re-shape or replace sync pulses with new pulses.

**PROGRAM BUS:** A row of buttons on a switcher that sends a signal out on the program line, either to a transmitter, or to a VTR.

**PROTECTION MASTER:** A copy (dub) of a master tape, usually made immediately once the master has been recorded. Used as a backup in the event the master is damaged, and normally is stored in a safe place.

**PULL UP** *see Ripple*

**PULSE CROSS DISPLAY:** A special test display of a video signal that offsets both horizontal and vertical blanking intervals so that they cross at the center of the screen, and are thus visible.

**PUNCH TAPE** *see Paper Tape*

**QUAD (QUADRAPLEX):** The original videotape format, using 2-inch tape, and employing four record/playback heads in a transverse scanning pattern.

**QUAD SPLIT:** A special effect wherein four pictures are combined on the screen, one in each corner.

**QUANTEL:** Trade name commonly used when referring to a digital video effects unit made by Quantel.

**R.F.:** Radio Frequency.

**R.G.B.:** Red, green & blue, the primaries colors of the additive color system used in color television.

**RS-170:** The EIA (Electronic Industries Association) standard for color television signals.

**RS-232:** The EIA standard (a description some would dispute) for serial data communications.

**RASTER:** The scanned area making up the active portion of a video signal.

**RE-ENTRY:** The capability of larger switchers to re-enter an effect set up on one mix/effects bank into a second M/E bank for further manipulation. Larger switchers may offer double, triple, or even quadruple re-entry.

**REACTION SHOT:** A shot of one or more people reacting to some action or dialogue.

**REAL TIME:** Denotes the actual time over which events transpire. A program done in real time is one that has not been edited.

**RECEIVER:** In television, a receiver is a television set that includes a tuner and an audio amplifier and speaker. It is capable of receiving broadcast radio frequency signals, as opposed to a monitor, which accepts a composite video signal only.

**RELEASE PRINT:** A film term denoting a color corrected print of a completed film made for distribution. The video counterpart would be a dub made from an edited master tape for distribution.

**REVERB:** Short for reverberation, an electronic sound effect similar to echo, used to create a fuller sound, or to recreate the ambience of a room.

**RIDING LEVELS:** Carefully adjusting audio or video levels during production.

**RIPPLE:** An action performed by a computer editing system. If the length or position of an edit in an edit decision list is changed, the computer can change the record starting times of all edits that follow the altered one to correct the list.

**ROLL:** 1. In graphics, information moving vertically on the screen, usually from bottom to top, as with credits at the end of a program. 2. A picture aberration wherein the picture becomes unstable, and "rolls" upwards or downwards on the screen—often only once, as a result of bad vertical sync over one to several frames.

**ROLLING:** "Tape is rolling" means that the VTR has been started and tape is moving.

**ROUGH CUT:** A tentative, preliminary edit of a program. Corresponds to the result of off-line editing.

**S.E.C.A.M. (SYSTEME ELECTRONIQUE POUR COLOUR AVEC MEMORIE):** The color television system developed in France, and used there and in most of the communist-block countries and a few other areas, including parts of Africa.

**S.E.G. (SPECIAL EFFECTS GENERATOR):** A section of a switcher that provides the capability of performing wipes of various patterns. At the smaller levels of all-in-one, off-the-shelf switchers, sometimes used to indicate the entire switcher.

**S.M.P.T.E.:** Society of Motion Picture and Television Engineers, a professional association. (Usually called by the shorthand name pronounced "Simptee".)

**SMPT TIME CODE:** A frame numbering system adopted by SMPTE that assigns a number to each frame of video. Divided into hours, minutes, seconds and frames (e.g. 01:42:13:26). Used primarily in computer editing.

**S.O.T.:** Sound On Tape.



**SAFE ACTION:** An area comprising about 90 percent of the television raster that is likely to be seen on a majority of receivers, regardless of misadjustment, and in which it is therefore safe to include action.

**SAFE TITLE:** An area comprising about 80 percent of the television raster that is likely to be seen on virtually all receivers, regardless of misadjustment, and in which it is therefore safe to include printed information.

**SATURATION:** The measure of the amount of chrominance (color) relative to the luminance portion of a video signal.

**SCANNER:** The assembly comprised of the video head drum and heads.

**SCANNING:** 1. The process of moving an electron beam horizontally and vertically to create or reproduce television pictures. 2. The process of moving a video head across videotape to record or reproduce pictures.

**SCRATCH DUB:** A "quick and dirty" copy of a master tape, or a copy made during production (usually on a low-cost cassette format) simultaneous with recording on the master tape. Often used as dailies in video production.

**SEGMENTED:** Those videotape formats that record less than a full picture with each pass of the head are called segmented formats. Includes quad and the Type B 1-inch format.

**SEGUE:** A smooth and seamless transition from one musical piece to another with no space in between. Also has commonly come to mean any smooth transition.

**SERVO:** Any of various systems comprised of a variable-speed motor and the associated electronics that control its speed.

**SET UP LEVEL** *see Black Level*

**SHADOW KEYS:** A chromakey unit sensitive enough that it will key shadows of foreground objects.

**SHADOW MASK MONITOR:** A color monitor with an internal mask directly behind the screen containing thousands of small holes that regulate which color phosphor dots the red, green and blue beams are allowed to strike. Until the introduction of the Sony Trinitron tube, which employs an aperture grill, all color receivers and monitors were shadow mask designs.

**SIGNAL-TO-NOISE RATIO (S/N):** The amount of video or audio noise mixed in with the basic signal.

**SKEW:** 1. Errors in tape playback caused by improper tape tension, and seen as a curve or hook at the top of the picture. 2. The control on a VTR that corrects skew errors.

**SLATE:** A board containing the pertinent information about a shot, recorded on tape at the start of each take.

**SOFT SCRUB:** Trade name of the extended list management and automatic list cleaning module included in Edit Master.

**SOFT WIPE:** A wipe effect from one image to another that has a soft, diffused edge.

**SPEED:** The call given by a tape operator once the tape has been rolling for enough time that all servos are locked and the VTR has reached a stable speed, and (usually) that there is enough preroll time for use in editing.

**SPLIT EDIT:** An edit where the video and audio edits are made at different points, one preceding the other.

**SPLIT SCREEN:** A wipe between two signals stopped part way, with the two scenes separated along a horizontal or vertical line.

**SQUEEZOOM:** Trade name for a digital video effects unit marketed by Vital Industries.

**STILL STORE:** One of several types of devices that store still frame pictures for use in production. Most such units store video frames on computer-type disk drives, either in analog or digital form, allowing for extremely fast access times.

**STRIFE:** Most commonly, the process of recording SMPTE time code on a previously-recorded tape.

**SUBCARRIER:** The two 3.58 MHz color difference signals used in color television.

**SUBMASTER:** A tape used as an intermediate source in editing, created from the original master. For instance, when multiple effects are needed that are beyond the switcher's capabilities, a submaster is created with the first "layer" of effects, and then used as a source, at which point the additional effects are added.

**SUBTRACTIVE COLOR:** The system of colored pigments, where the basic color primaries combine to make black.

**SUPER:** Short for Superimposition. Correctly used, indicates a dissolve stopped half way through. Also commonly used to indicate a key, such as a person's name or a title, matted in over the video.

**SWEETENING:** The process of audio post production, at which time problems in the audio are corrected, and sound effects and music, etc., are added.

**SWITCHER:** A device with a series of input selectors that permits one of the various inputs to be sent out on the program line.

**SYNC:** Short for synchronization. 1. Pulses contained within a composite video signal to provide a synchronization reference for equipment. Also a separate signal that can be fed to various pieces of equipment. 2. Indicates synchronization between picture and sound. 3. Sound recorded on a separate audio tape, but synchronized with videotape or film shot simultaneously.

**SYNC GENERATOR:** A device that generates synchronizing pulses.

**T.B.C.** see *Time Base Corrector*

**TAIL SLATE:** Slate information recorded at the end of a take rather than at the beginning. Usually indicated as such by being shot upside down.

**TAKE:** (Verb:) The director's command to select a video source. (Noun:) An individual shot, scene or segment of a program.

**TIME BASE CORRECTOR (TBC):** A device that corrects time base stability errors (errors in the rate at which the signal is coming) during tape playback.

**TIME CODE** see *SMPTE Time Code*

**TONE (TEST TONE):** A constant audio frequency signal recorded at the start of a tape at 0 VU to provide a reference for later use, such as in post production.

**TRACE:** The trade name of a computer program that will combine several generations of edit decision lists into a single and complete list of all events.

**TRACK:** 1. The section of tape on which a signal is recorded. 2. The sound portion of a film or video program.

**TRACKING:** 1. A shot in which the camera moves along with performers who are walking, driving, etc. 2. The adjustment of the positioning of video heads during playback of a tape so that the heads reproduce the strongest possible signal.

**TRACKING EDIT** see *Match Frame Edit*

**TRAFFICKING:** The distribution of a completed program on tape to various destinations.

**TYPE C:** The SMPTE standard for the 1-inch non-segmented helical video tape recording format.

**U-MATIC:** The trade name for the 3/4-inch videocassette system originally developed by Sony. Now established as the ANSI (American National Standards Institute) Type E videotape format.

**ULTIMATE:** The trade name of a very high quality special effects system similar in application to a chromakeyer.

**UNDERSCAN:** Reducing the height and width of the video picture so that the edges, and thus portions of blanking, can be observed.

**UP CUT:** In editing, to cut back into the end of the previous scene, often by mistake. In general, to cut short.

**V.C.R.:** Video Cassette Recorder.

**V.H.S. (VIDEO HOME SYSTEM):** The 1/2-inch videocassette format developed by JVC for consumer and industrial use.

**V.O.:** Short for Voice Over (narration—the speaker is not seen).

**V.T.R.:** Video Tape Recorder.

**V.U. METER:** Short for Volume Unit meter. A meter used to monitor audio levels.

**VECTORSCOPE:** A special oscilloscope used in television to monitor color reproduction.

**VERTICAL INTERVAL:** Indicates the vertical blanking period. Also indicates a type of switcher or editor that will only make a cut during the vertical interval.

**VERTICAL SYNC:** The synchronizing pulses used to define the end of one television field and the start of the next, occurring at a rate of approx. 59.94 Hz (color), and 60 Hz (black & white).

**VIDEO:** 1. The visual portion of a television program. 2. Colloquially, has several meanings: (A) Synonymous with television; (B) All television other than broadcast television.

**VIDEOCASSETTE:** A plastic shell containing two reels and a given length of videotape.

**VIDEODISC:** One of several technologies whereby programs are stored on a flat disk, similarly to an audio record, most commonly using optical recording techniques.

**VISION MIXER:** British term for video switcher.

**WAVEFORM MONITOR:** A special oscilloscope used in television to evaluate various aspects of a video signal, including levels, blanking, sync, et al.

**WHITE BALANCE:** The adjustment of the red, green and blue channels in a color camera (or during post production) to produce the correct balance (and thus white) when shooting a flat white field.

**WILD SOUND:** Sound that is not synchronized with the video, such as sound recorded on a separate audio recorder.

**WINDOW DUB:** A copy of a time-coded videotape with a visual display of the time code numbers keyed into the picture.

**WIPE:** A transition from one scene to another wherein the new scene is revealed by a moving line or pattern.

**WORKPRINT:** A copy of a videotape (usually a master tape), usually made on a videocassette for off-line editing. Workprints are often made as window dubs for off-line editing.

**WRITING SPEED:** The speed of a recording head relative to the tape.

**XFR:** Shorthand slang for "transfer".

**X.L.R.:** A three-pin balanced audio connector used on all professional equipment. Also called a Cannon-type connector.

**Z:** Electronic shorthand for IMPEDANCE.